We claim:

1. (Previously presented) A tubular structure having an aspect ratio of about 3 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform coating.

2. (Currently amended) The tubular structure of claim 1 wherein said coating comprises a thickness of ~~at least~~ about 0.5 micrometers or more.

3. (Currently amended) The tubular structure of claim 1 wherein said coating comprises a thickness of ~~at least~~ about 2 micrometers or more.

4. (Currently amended) The tubular structure of claim 1 wherein said coating comprises a thickness of ~~at least~~ about 5 micrometers or more.

5. (Currently amended) The tubular structure of claim 1 wherein said coating comprises a thickness of ~~at least~~ about 15 micrometers or more.

6. (Currently amended) The tubular structure of claim 1 wherein said gaseous deposition product ~~gaseous~~ comprises carbon.

7. (Withdrawn) The tubular structure of claim 1 wherein said gaseous deposition product comprises silicon.

8. (Withdrawn) The tubular structure of claim 1 wherein said gaseous deposition product comprises chromium.

9. (Withdrawn) The tubular structure of claim 1 wherein said gaseous deposition product comprises aluminum.

10. (Withdrawn) The tubular structure of claim 1 wherein said gaseous deposition product comprises titanium.

11. (Previously presented) The tubular structure of claim 1 wherein a gaseous precursor material for said gaseous deposition product comprises a diffusion pump fluid selected from the group consisting of polyphenyl ether; elcosyl naphthalene; *i*-diamyl phthalate; *i*-diamyl sebacate; chlorinated hydrocarbons; *n*-dibutyl phthalate; *n*-dibutyl sebacate; 2-ethyl hexyl sebacate; 2-ethyl hexyl phthalate; di-2-ethyl-hexyl sebacate; tri-*m*-cresyl phosphate; tri-*p*-cresyl phosphate; and o-dibenzyl sebacate.

12. (Withdrawn) The tubular structure of claim 1 wherein said gaseous deposition product comprises siloxane.

13. (Withdrawn) The tubular structure of claim 12 wherein said siloxane is polydimethyl siloxane.

14. (Withdrawn) The tubular structure of claim 12 wherein said siloxane is pentaphenyl-trimethyl siloxane.

15. (Withdrawn) The tubular structure of claim 12 wherein a gaseous precursor material for said siloxane is a silicon containing diffusion pump fluid.

16. (Withdrawn) The tubular structure of claim 1 wherein a gaseous precursor material for said gaseous deposition product comprises a metallic precursor.

17. (Withdrawn) The tubular structure of claim 16 wherein said metallic precursor is selected from the group consisting of metal carbonyls, metal acetates, and metal alkanedionates.

18. (Withdrawn) The tubular structure of claim 17 wherein said metallic precursor is metal pentanedionate.

19. (Withdrawn) The tubular structure of claim 17 wherein said metallic precursor is selected from the group consisting of tetrakis(dimethylamino)titanium, hexacarbonylchromium, and hexacarbonylvanadium carbonyl.

20. (Withdrawn) The tubular structure of claim 19 wherein said hexacarbonylvanadium carbonyl is selected from the group consisting of erbium III acetate, yttrium 2,4- pentanedionate, erbium 2,4-pantanedionate, and N,N-(dimethylethanamine)-trihydridoaluminum.

21. (Withdrawn) The tubular structure of claim 1 wherein said gaseous deposition product comprises silane.

22. (Withdrawn) The tubular structure of claim 1 wherein said gaseous deposition product comprises trimethyl silane.

23. (Previously presented) The tubular structure of claim 1 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

24. (Previously presented) The tubular structure of claim 2 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

25. (Previously presented) The tubular structure of claim 3 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

26. (Previously presented) The tubular structure of claim 4 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

27. (Previously presented) The tubular structure of claim 5 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

28. (Previously presented) A tubular structure having an aspect ratio of about 3 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating.

29. (Currently amended) The tubular structure of claim 28 wherein said coating comprises a thickness of ~~at least~~ about 0.5 micrometers or more.

30. (Currently amended) The tubular structure of claim 28 wherein said coating comprises a thickness of ~~at least~~ about 2 micrometers or more.

31. (Currently amended) The tubular structure of claim 28 wherein said coating comprises a thickness of ~~at least~~ about 5 micrometers or more.

32. (Currently amended) The tubular structure of claim 28 wherein said coating comprises a thickness of ~~at least~~ about 15 micrometers or more.

33. (Previously presented) The tubular structure of claim 29 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

34. (Previously presented) The tubular structure of claim 30 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

35. (Previously presented) The tubular structure of claim 31 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

36. (Previously presented) The tubular structure of claim 32 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

37. (Previously presented) The tubular structure of claim 29 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

38. (Previously presented) The tubular structure of claim 30 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

39. (Previously presented) The tubular structure of claim 31 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

40. (Previously presented) The tubular structure of claim 32 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

41. (Previously presented) The tubular structure of claim 29 wherein said coating comprises a hydrogen concentration of about 32 %.

42. (Previously presented) The tubular structure of claim 30 wherein said coating comprises a hydrogen concentration of about 32 %.

43. (Previously presented) The tubular structure of claim 31 wherein said coating comprises a hydrogen concentration of about 32 %.

44. (Previously presented) The tubular structure of claim 32 wherein said coating comprises a hydrogen concentration of about 32 %.

45. (Previously presented) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a gaseous deposition product comprising a substantially uniform amorphous carbon coating.

46. (Currently amended) The tubular structure of claim 45 wherein said coating has a thickness of ~~at least~~ about 0.5 micrometers or more.

47. (Currently amended) The tubular structure of claim 45 wherein said coating has a thickness of ~~at least~~ about 2 micrometers or more.

48. (Currently amended) The tubular structure of claim 45 wherein said coating has a thickness of ~~at least~~ about 5 micrometers or more.

49. (Currently amended) The tubular structure of claim 45 wherein said coating has a thickness of ~~at least~~ about 15 micrometers or more.

50. (Previously presented) The tubular structure of claim 46 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

51. (Previously presented) The tubular structure of claim 47 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

52. (Previously presented) The tubular structure of claim 48 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

53. (Previously presented) The tubular structure of claim 49 wherein said substantially uniform coating comprises a coating thickness comprising a uniformity of about +/- 20% or less along its length.

54. (Previously presented) The tubular structure of claim 46 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

55. (Previously presented) The tubular structure of claim 47 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

56. (Previously presented) The tubular structure of claim 48 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

57. (Previously presented) The tubular structure of claim 49 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

58. (Previously presented) The tubular structure of claim 46 wherein said coating comprises a hydrogen concentration of about 32 %.

59. (Previously presented) The tubular structure of claim 47 wherein said coating comprises a hydrogen concentration of about 32 %.

60. (Previously presented) The tubular structure of claim 48 wherein said coating comprises a hydrogen concentration of about 32 %.

61. (Previously presented) The tubular structure of claim 49 wherein said coating comprises a hydrogen concentration of about 32 %.

62. (Currently amended) The tubular structure of claim 45 comprising said interior surface, wherein said interior surface comprises ~~comprising at least~~ one or more metal, and ~~comprising~~ a sequential gradient towards a center of said tubular structure comprising:

silicon chemically bonded to said metal, forming a metal-silicide;

silicon cohesively bonded to said metal-silicide;

carbon chemically bonded to said silicon, forming silicon-carbide; and

carbon cohesively bonded to said silicon-carbide forming said substantially uniform carbon coating.

63. (Currently amended) The tubular structure of claim 45 comprising said interior surface, wherein said interior surface comprises ~~comprising at least~~ one or more metal, and ~~comprising~~ a sequential gradient towards a center of said tubular structure comprising:

germanium chemically bonded to said metal, forming a metal-germanide;

germanium cohesively bonded to said metal-germanide;

carbon chemically bonded to said germanium, forming germanium -carbide; and

carbon cohesively bonded to said germanium -carbide forming said substantially uniform carbon coating.

64. (Currently amended) The tubular structure of claim 62 wherein said carbon coating has a thickness of ~~at least~~ about 0.5 micrometers or more.

65. (Currently amended) The tubular structure of claim 62 wherein said carbon coating has a thickness of ~~at least~~ about 2 micrometers or more.

66. (Currently amended) The tubular structure of claim 62 wherein said coating has a thickness of ~~at least~~ about 5 micrometers or more.

67. (Currently amended) The tubular structure of claim 62 wherein said coating has a thickness of ~~at least~~ about 15 micrometers or more.

68. (Currently amended) A tubular structure having an aspect ratio of about 6 or more and comprising an interior surface, said interior surface comprising a ~~The tubular structure of claim 62 wherein said~~ gaseous deposition product ~~comprises~~comprising carbon.

69. (Currently amended) The tubular structure of claim [[~~62~~]]68 wherein said gaseous deposition product comprises silicon.

70. (Currently amended) The tubular structure of claim [[~~62~~]]68 wherein said gaseous deposition product comprises chromium.

71. (Currently amended) The tubular structure of claim [[~~62~~]]68 wherein said gaseous deposition product comprises aluminum.

72. (Currently amended) The tubular structure of claim [[~~62~~]]68 wherein said gaseous deposition product comprises titanium.

73. (Previously presented) The tubular structure of claim 62 wherein a gaseous precursor to said gaseous deposition product comprises a diffusion pump fluid selected from the group consisting of polyphenyl ether; elcosyl naphthalene; *i*-diamyl phthalate; *i*-diamyl sebacate; chlorinated hydrocarbons; *n*-dibutyl phthalate; *n*-dibutyl sebacate; 2-ethyl hexyl sebacate; 2-ethyl

hexyl phthalate; di-2-ethyl-hexyl sebacate; tri-*m*-cresyl phosphate; tri-*p*-cresyl phosphate; and o-dibenzyl sebacate.

74. (Currently amended) The tubular structure of claim [[~~62~~]]68 wherein said gaseous deposition product comprises a siloxane.

75. (Currently amended) The tubular structure of claim [[~~64~~]]68 wherein said siloxane is polydimethyl siloxane.

76. (Currently amended) The tubular structure of claim [[~~64~~]]68 wherein said siloxane is pentaphenyl-trimethyl siloxane.

77. (Currently amended) The tubular structure of claim [[~~64~~]]74 wherein a gaseous precursor to said siloxane is a silicon containing diffusion pump fluid.

78. (Currently amended) The tubular structure of claim [[~~62~~]]68 wherein a gaseous precursor to said gaseous deposition product comprises a metallic precursor.

79. (Previously presented) The tubular structure of claim 78 wherein said metallic precursor is selected from the group consisting of metal carbonyls, metal acetates, and metal alkanedionates.

80. (Previously presented) The tubular structure of claim 79 wherein said metallic precursor is metal pentanedionate.

81. (Previously presented) The tubular structure of claim 79 wherein said metallic precursor is selected from the group consisting of tetrakis(dimethylamino)titanium, chromium carbonyls (hexacarbonylchromium), vanadium carbonyls (hexacarbonylvanadium carbonyl).

82. (Previously presented) The tubular structure of claim 81 wherein said hexacarbonylvanadium carbonyl is selected from the group consisting of erbium III acetate, yttrium 2,4- pentanedionate, erbium 2,4-pantanedionate, and N,N-(dimethylethanamine)-trihydridoaluminum.

83. (Previously presented) The tubular structure of claim 62 wherein said gaseous deposition product comprises silane.

84. (Currently amended) The tubular structure of claim [[~~62~~]]68 wherein said gaseous deposition product comprises trimethyl silane.

85. (Previously presented) The tubular structure of claim 64 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

86. (Previously presented) The tubular structure of claim 65 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

87. (Previously presented) The tubular structure of claim 66 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

88. (Previously presented) The tubular structure of claim 67 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

89. (Previously presented) The tubular structure of claim 85 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

90. (Previously presented) The tubular structure of claim 86 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

91. (Previously presented) The tubular structure of claim 87 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

92. (Previously presented) The tubular structure of claim 88 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

93. (Previously presented) The tubular structure of claim 85 wherein said coating comprises a hydrogen concentration of about 32 %.

94. (Previously presented) The tubular structure of claim 86 wherein said coating comprises a hydrogen concentration of about 32 %.

95. (Previously presented) The tubular structure of claim 87 wherein said coating comprises a hydrogen concentration of about 32 %.

96. (Previously presented) The tubular structure of claim 88 wherein said coating comprises a hydrogen concentration of about 32 %.

97. (New) The tubular structure of claim 68 wherein said coating has a thickness of about 0.5 micrometers.

98. (New) The tubular structure of claim 68 wherein said coating has a thickness of about 2 micrometers or more.

99. (New) The tubular structure of claim 68 wherein said coating has a thickness of about 5 micrometers or more.

100. (New) The tubular structure of claim 68 wherein said coating has a thickness of about 15 micrometers or more.

101. (New) The tubular structure of claim 97 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

102. (New) The tubular structure of claim 98 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

103. (New) The tubular structure of claim 99 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

104. (New) The tubular structure of claim 100 wherein said coating thickness comprises a uniformity of about +/- 20% or less along its length.

105. (New) The tubular structure of claim 101 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

106. (New) The tubular structure of claim 102 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

107. (New) The tubular structure of claim 103 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.

108. (New) The tubular structure of claim 104 wherein said coating comprises a nanohardness of about 15 GPa measured using a nano-indentation hardness tester.